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The Effect of Teacher's Voice vs. Written Messages via WhatsApp on Iranian EFL Learners' Learning and Retention of Lexical Collocations

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Abstract
Vocabulary learning is a crucial part of acquiring a language. According to Webb (2014), learning vocabulary is essential for language proficiency, but learning words regardless of their relationship with other words is not enough. Accordingly, this study aimed to investigate the effect of teacher's voice vs. written messages via WhatsApp on Iranian EFL learners' learning and retention of lexical collocations. In order to conduct this study, 100 female English language learners were asked to take part in the OPT test and sixty participants whose score ranged one standard deviation above and below the mean were selected and divided into three groups, as one control and two experimental. Then the pretest was administered before any treatment. One of the experimental groups was treated via the teacher's voice and the next one via written messages through WhatsApp for ten sessions. The participants then took part in the posttest. In order to test the participants' retention of collocations, they were asked to take part in the two-week delayed posttest, too. The analyses of obtained data showed that the teacher's voice via WhatsApp had a statistically significant effect on both EFL learners' learning and retention of lexical collocations. However, the teacher's written messages via WhatsApp just had a statistically significant effect on EFL learners' learning of lexical collocations, and it did not have a statistically significant effect on retention of lexical collocations. This is study is significant for all EFL/ESL learners, teachers, and English language institutes.

Keywords: Mobile-assisted language learning; Teaching English as a foreign language; Vocabulary

1. Introduction

Nowadays, English language learning is considered crucial for everybody because it has become an international communication medium as it is the language of diverse activities, including education, politics, tourism, medicine, socio-economics, etc. (Mckey, 2002; Medgyes, 2002). Loewen (2015) said that with daily improvements in science and technology, the use of language has become more difficult while the requirements go beyond one's first

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language (L1), and acquiring a second (L2) or multiple languages for effective communication with people of other languages is growing.

In addition, research shows that vocabulary learning is a crucial part of acquiring a language, and it is a must for language learners to become efficient users of the target language (Schmitt, 2008). Gass and Selinker (2001) also believed that vocabulary is the most significant component of a language. Furthermore, according to Webb (2014), learning vocabulary is essential for language proficiency but not enough for learning words regardless of their relationship with other words since Firth (1957) stated that a word is characterized by the company it keeps, which refers to collocations. As stated by Koya (2006), collocations are regarded as a significant component of language use and communication and can discriminate native speakers from non-native speakers. Non-native learners use a limited number of collocations in comparison with native speakers of a target language except for the few number of repeated ones which are extremely used.

Moreover, it is an aspiration of any second or foreign language (L2) learner to develop fluency and accuracy sufficient for effective communication with L1 users and other L2 users of the target language. One important element that needs to be mastered is collocations, that is, combinations of words that co-occur regularly (Brown, 2018). Similarly, collocations can be defined as either "the way in which words co-occur in natural texts in statistically significant ways" (Lewis, 2000, p. 133). Lewis (2000) believes that "lexical collocations are the combination of two equal lexical components, while grammatical collocations combine a lexical word, typically a noun, a verb or an adjective with a grammatical word" (p. 133).

Similarly, much research has been directed at collocational learning and knowledge in L2, with the prevailing view being that collocation is an area of difficulty for learners. Bahns and Eldaw (1993), for example, reported that "L2 learners often have particular problems with word combinations, even at a relatively advanced level" (p. 101). Paquot and Granger (2012) described collocations (and other multi-word units) as "notoriously difficult for learners" (p. 130). Bonk (2000) noted that researchers and teachers "have long spoken of learners' inadequate proficiency to produce acceptable collocations in a foreign language" (p. 9-10). Also, Nesselhauf (2005), discussing collocations as one type of prefabricated unit, states that "knowledge of and the ability to use prefabricated units . . . [are] essential for the language learner; unfortunately, however, they also pose considerable difficulties, even for the advanced learner" (p. 2).

On the other side, mobile is one of the technologies that can be used to help learners in learning a foreign language, and it is a dominant tool for most students. They are not considered just as communication devices; however, they are useful computers that can be used in any kind of learning (Prensky, 2005). Thornton and Houser (2005) mentioned that mobile devices could be effective in delivering foreign language learning materials. It is not only fast and convenient for the teacher to send, but also for the students to receive and review.

The high status of vocabulary knowledge in academic settings has been greatly emphasized in the field of language learning (Donley & Reppen, 2001), and collocations, as a subcategory of vocabulary, are regarded as 'linguistic chunking' that assists the user to use them in his/her performance through a subconscious process (Ellis, 2002). However, Iranian

EFL learners are not much proficient in using correct collocations, and producing collocations in writing and speaking raises particular problems. English teachers have been making significant efforts to enhance EFL learners' writing and speaking by spending a lot of time on correcting students' production and trying to identify the areas of difficulty; nevertheless, in spite of this effort, the same errors continue to occur. As Hill (2000) said, "students with good ideas often lose marks because they do not know the four or five most important collocations of a keyword that is central to what they are writing about" (p. 5). Furthermore, in particular, the production of collocations is seen as challenging for learners (Bonk, 2000; Laufer & Waldman, 2011) because collocations are often unpredictable and because L2 collocations may differ from collocations in the L1.

The literature showed that, regarding the use of collocations by Iranian EFL learners, some studies have been carried out (e.g., Goudarzi & Moini, 2012; Jafarpour, Hashemian, & Alipour, 2013; Koosha & Jafarpour, 2006) and suggested different ideas with respect to enhancing the learners' collocation; meanwhile, there is much room for further study in this area. Accordingly, this study aimed to investigate a new technique in order to develop EFL learners' collocation. Therefore, this study was carried out to test the impact of written and voice messages via WhatsApp on Iranian EFL learners' learning and retention of lexical collocations. To this end, the following research questions were formulated in this study.

RQ1: Does the teacher's voice via WhatsApp have a statistically significant effect on Iranian EFL learners' learning of lexical collocations?

RQ2: Does the teacher's written messages via WhatsApp have a statistically significant effect on Iranian EFL learners' learning of lexical collocations?

RQ3: Does the teacher's voice via WhatsApp have a statistically significant effect on Iranian EFL learners' retention of lexical collocations?

RQ4: Does the teacher's written messages via WhatsApp have a statistically significant effect on Iranian EFL learners' retention of lexical collocations?

2. Review of Literature

2.1. Collocations

Collocation is a general term used to describe the "co-occurrence of two or more words within a short space of each other in a text" (Sinclair, 1991, p. 170). It is one type of commonly studied 'formulaic sequences' that also includes idioms (e.g., raining cats and dogs), figurative expressions (e.g., to freeze to the spot), pragmatic formulas (e.g., have a nice day), discourse markers (e.g., let me see now), etc. (Wray, 2002). Wray (2002) stated that such formulaic sequences have been proven to be ubiquitous in a language and thus are considered central to the mastery of a language, whether in recognition or production.

According to Wray (2002), among many studies regarding the formulaic sequences, the research on collocation has received special attention, not only because it is a pervasive phenomenon across many languages, but also because it reveals the intricate relationship between lexicon, syntax, and semantics. Its significance in language learning and teaching has long been recognized by various linguists, language researchers, and language educators.

A number of scholars (e.g. Barfield & Gyllstad, 2009; Granger & Paquot, 2008; Nesselhauf, 2004) have discussed two traditions in research on collocation: the phraseological approach and the frequency-based approach. The phraseological approach can be traced back to Palmer's (1993) research on vocabulary. This approach seeks to define multi-word units linguistically, which describes linguistic criteria by which phraseological units can be identified and by which one type of phraseological unit can be distinguished from another. The two principal linguistic criteria used are semantic opacity and restrictedness, each of which is viewed as a scale. Collocations are seen as occupying a certain region on these scales, being less restricted and less vague than idioms at one extreme, but more restricted and vaguer than free combinations which lie outside the limits of phraseology altogether at the other (Cowie, 1998).

The frequency-based approach, on the other hand, was largely developed by Sinclair, under the influence of Firth (1951, 1952, 1957), and has since been taken forward by a number of scholars. This approach sees collocations as bonded combinations of words, with those bonds arising from their frequency of co-occurrence. In research practice, a collocation is a pair of words co-occurring in texts within a certain distance of each other, specified by the researcher. In the frequency-based approach today, researchers use corpora and specialized software to find collocations.

Another issue that should be taken into account while conducting research in relation to collocations is the distinction between lexical and grammatical collocations. The combination of two lexical words is termed 'lexical collocation', while the combination of one lexical and one grammatical word is called 'grammatical collocation'. Many recent studies concentrate on lexical collocations, and in both phraseological and frequency-based research, there is a particular focus on two types: verb + noun and adjective + noun collocations (Taylor, 2012). In the present study, only lexical collocations were considered.

2.2. Mobile-Assisted Language Learning (MALL)

Mobile-learning (m-learning) refers to learning that involves the use of mobile devices (Park, 2005; Pinkwart, Hoppe, Milrad, & Perez, 2003). Such learning could be either formal or informal. Activated by continual interaction through and with personal and mobile technology (Sharples, Taylor, & Vavoula, 2005), m-learning could happen anywhere and anytime.

Reports on research projects of mobile-assisted language learning, be it technology-focused or curriculum-driven, mainly fall into three categories: *behaviorist-oriented*, *collaborative learning*, and *learning and teaching support*. Research conducted from the behaviorist perspective mainly involves the use of text messaging, voice mail, and email functions for vocabulary learning (e.g. Cui & Bull, 2005; Song & Fox, 2005). In these behaviorist-oriented projects, learners received pre-designed learning materials. The degree of individualization is limited because they had little freedom in choosing what they wished to learn.

As for the research guided by collaborative learning theories, a majority of the existing projects are technology-based, focusing on the testing of initial prototypes designed to be used in mobile devices. Specific systems are being utilized to help language learners to share

individual experience and learn through collaboration (e.g. Joseph, Binsted, & Suthers, 2005). Such systems often keep a learner's profile; some even incorporate context awareness (e.g. Ogata & Yano, 2004).

Studies conducted under the learning and teaching support category (e.g. Belanger, 2005; Milrad, Jackson, & Bergman, 2005) found that mobile devices are seen as a useful tool for supplementing administrative tasks. However, most participants in these studies were also found to be reluctant to invest their time and money in personalizing and extending the loaned mobile devices.

Recent studies advance the line of research by examining learner motivation in mobile learning. Questionnaires are developed to extend the Technology Acceptance Model (Davis, 1989; Venkatesh & Davis, 1996) by studying learners' perceived usefulness and ease of use (Chang, Yan, & Tseng, 2012; Park, Nam, & Cha, 2012), playfulness (Huang, Jang, Machtmes, & Deggs, 2011), and perceived convenience (Chang et al., 2012). Others study learners' intention to adopt mobile learning from a consumer's perspective (Yang, 2013), or compare learner perceptions of mobile-assisted language learning from different cultural backgrounds (Liu & Thorkildsen, 2010).

A review of existing studies on mobile-assisted language learning reveals a gap between the research focus and the nature of m-learning. On the one hand, m-learning assumes that (1) learning flows across locations, time, topics, and technologies; and that (2) the contexts of technology use, the learning process as well as the mode of technology use are all unpredictable. Accordingly, mobile technology is more suitable for supporting informal, life-long, and serendipitous learning outside the classroom (Sharples et al., 2005). On the other hand, in most of the research into mobile-assisted language learning, mobile technology has been used as part of formal learning in a traditional classroom setting, mediated by a trained teacher. The underlying assumptions that learning could be planned, and that it is possible to predict when, how and what technology should be used. Such tension between the traditional context-bound education design and the informal nature of mobile learning raises the need for refining the research design.

2.3. Related Studies

Reviewing the literature showed a lot of studies with regard to teaching and learning collocation in Iranian EFL contexts. As an instance, Namvar (2012) investigated the relationship between language proficiency and the use of collocation by Iranian EFL students. In this study, learners' use of collocations was investigated through analyzing the participants' written work by giving them a writing task and a multiple-choice test. The participants of the study were 15 Iranian postgraduate students, and their collocational errors were examined to identify the source of their difficulty with collocations. The findings demonstrated that in the writing task, the participants had difficulty with both grammatical and lexical collocations. This seemed to be due to the strong effect of language transfer on the participants' production of collocations. In addition, the findings indicated that the use of collocations was related to proficiency in English and there was a strong relationship between knowledge of collocations and the overall proficiency.

Another study in this regard belongs to Shokouhi and Mirsalari (2010), who investigated the relationship between the collocational knowledge and general linguistic knowledge of EFL learners. The second purpose of their study was to reveal which type(s) of collocation was or were more difficult for EFL learners. The participants were 35 EFL learners who were homogenized through the administration of a proficiency test. They were given a 90-item multiple-choice test including lexical collocations (*noun + noun, noun + verb, verb + noun,* and *adjective + noun*), and grammatical collocations (*noun + preposition* and *preposition + noun*). The test was checked by a native speaker, and corrections were made if necessary. The results of the study showed no significant correlation between collocational knowledge of EFL learners and general linguistic knowledge. It was also found that the participants had more difficulty with learning the grammatical collocations than with the lexical collocations. In addition, considering all subcategories, learning *noun + preposition* was more difficult than all other collocations, and it was the easiest of all for the participants to learn *noun + verb* collocations.

Similar to the current study, Goudarzi and Moini's (2012) study was developed to examine the effect of input enhancement of collocations in reading on collocation learning and retention of EFL learners. The purpose of their study was to investigate the impact of using three different kinds of collocation on learning and retention of collocations by Iranian EFL university students. The three different forms of presentation of collocations included highlighted (bold), non-highlighted, and L1 glossed forms. The collocations were presented in these three ways to 20 participants, who were Iranian TEFL university students in Jahad Daneshgahi University in Isfahan. They were sophomores and juniors whose proficiency level was upper-intermediate. The participants were asked to read three passages with collocations presented in three different ways: bold collocations, L1 glossed collocations and non-highlighted (text only) collocations. Then two collocation tests were given to the participants. The first test was administered immediately after reading the texts, and the second test was given to them after two weeks. The obtained data were analyzed through one-way repeated measures of ANOVA and follow-up Scheffe post hoc tests ($p<.05$). The results showed that the participants in L1 glossed group obtained higher scores than the participants in the other two groups. Also, the learners in highlighted group outperformed the non-highlighted (text only) group.

With regard to the effects of using mobile device applications in EFL courses, a study was conducted in the context of Iran by Fageeh (2013). His study was developed to explore the benefits of mobile phone applications with regard to their potential for improving vocabulary learning and motivation. The theoretical foundation of the study was taken from learning theories and cognitive techniques. Following a pretest/posttest design, 27 experimental students and 31 control students participated in this study by using mobile device-based vocabulary applications twice a week over the course of one semester. The results indicated statistically significant differences in performance between the two groups in posttest scores and increases in the posttest scores of the experimental group indicating enhanced vocabulary learning. A motivation scale was employed to measure the motivation of the participants in both groups at

the posttest. The results indicated that experimental participants had enhanced motivation perceptions compared to the control participants.

Another study in this regard in the Iranian context was carried out by Jafari and Chalak (2016). This study examined the effect of using WhatsApp on vocabulary learning of junior high school EFL learners. The design of the study was mixed-method with a pretest and posttest. There were 30 male and 30 female participants selected from two male and female junior high schools located in Isfahan, Iran. There were four English classes, two of which were chosen as the control group and the two others were chosen as the experimental group. In the experimental group, the participants received vocabulary instructions through WhatsApp four days a week. However, in the experimental group, vocabulary instruction was performed in the conventional method which is usually used for teaching English in Iranian schools. The results indicated that using WhatsApp significantly affected the vocabulary learning of the students. Moreover, no significant difference was found between the effect of using WhatsApp on vocabulary learning of male vs. female participants.

Regarding the use of computers and mobile devices in vocabulary and lexical instruction, a study was carried out by Hassan Taj, Ali, Sipra, and Ahmad (2017). This study investigated the effect of computer and mobile devices on vocabulary learning of EFL learners. One hundred and twenty-two freshman students participated in this study, and the number of male and female participants was equal. During the six weeks of treatment, the vocabulary learning activities in the experimental group were presented through computers in the language laboratory. The students in the experimental group also received multi-glossed vocabulary cards through WhatsApp mobile application. In the control group, vocabulary instruction was done without the use of computers and mobile devices. Comparison between the pretest and posttest of the two groups showed that vocabulary learning of the experimental group was significantly better than the control group. Furthermore, the performance of the male and female participants was not significantly different.

Çetinkaya and Sütçü (2018) conducted a comparative study to determine the effects of Facebook and WhatsApp on vocabulary learning of EFL learners and their attitudes toward the presentation method. The success of the students in Facebook, WhatsApp, and the control group showed a significant difference, meaning that the learning environments had different effects on the increase of success of students. The analysis revealed that the difference in the mean scores of the students in WhatsApp, Facebook, and control groups was significant, and WhatsApp has been more effective in the increase of the success. Although the participants in the Facebook group outperformed the participants of the control group, the difference was not found significant. In addition, the participants stated that they were willing to use this method of learning not only in their current class but also in their other classes as well. The participants also showed positive attitudes toward these methods of presenting vocabulary on the grounds that learning could take place unconsciously. However, a few participants had negative opinions about the presentation method because of the unnecessary messages and the timing of some messages.

In relation to learning vocabulary through WhatsApp, another study was conducted by Bensalem (2018) in an Arabian context. His study explored the development of academic

vocabulary knowledge of English as a foreign language (EFL) students using WhatsApp compared to the traditional method of vocabulary instruction. It also aimed at investigating students' perceptions about the use of WhatsApp in learning vocabulary. Forty Arab EFL students at the elementary level enrolled at a public university in the Persian Gulf region participated in the study. Among the students of one class, 21 participants were randomly selected as the experimental group. They completed and submitted their vocabulary assignments which consisted of looking up the meanings of new words in a dictionary and making a sentence using each word and submitting their sentences via WhatsApp. The control group consisted of 19 participants randomly chosen from the students of another class. The homework assignment of the control group was the same as that of the experimental group. The only difference was that participants of the control group had to deliver it through the traditional paper and pencil method. Data were collected using a pretest-posttest design. The obtained data were analyzed through the t-test method, and the results demonstrated that the WhatsApp group obtained significantly better scores than the control group in the vocabulary test. In addition, in this study, the participants' perceptions of the use of WhatsApp in learning vocabulary were examined through a questionnaire. The results indicated positive attitudes of the participants towards learning new vocabulary items via WhatsApp.

3. Method

3.1. Participants

The participants of the present study were chosen from 100 female English language learners whose ages ranged from 12 to 16. They were at the intermediate level of English language proficiency and selected from a language institute in Tehran. In order to choose the homogenized participants, the Oxford Placement Test (OPT) was administered, and 60 students whose scores fell between one standard deviation below and above the mean were selected. They were divided randomly into three groups, two experimental groups and one control group, each group with 20 students. The first experimental group was treated by voice messages via WhatsApp and called the voice group, and the second group was treated by text messages via WhatsApp and was called the text group. The control group was treated just in the classroom, and they did not receive any treatment via WhatsApp.

3.2. Instrumentation

3.2.1. *Oxford Placement Test (OPT)*: In order to check the homogeneity of the participants, the OPT was used in the current study. Developed by Oxford University Press and Cambridge ESOL, this test of English language proficiency gives teachers a reliable and time-saving method of determining students' proficiency level (Hill & Taylor, 2004). It is quick and easy to administer and is ideal for placement testing and examination screening and takes approximately 60 minutes to administer. All the items of this test have a multiple-choice format. Like most other multiple-choice tests, the answers to this test are marked directly on the answer sheet, and the answer sheets can be scored quickly and easily using the overlays provided. The test assesses the knowledge of English proficiency, and also is considered a global measure of ability in the English language or other content areas. The test enjoys high reliability (α=.91)

based on Cronbach's alpha (Nematizadeh, 2011) and it is also reported it enjoys high construct validity (Wistner, Sakai, & Abe, 2009).

3.2.2. *Collocations test*: In order to test the learners' learning of lexical collocations before and after the treatment sessions, the researchers developed a 20-item test based on the book *Collocations in Use* (McCarthy & O'Dell, 2005), which was selected for teaching collocations in this study. Since the collocations test was developed based on the content of the book which was taught during the treatment to the participants, it had content validity. However, in order to make sure of the validity of the test, it was given to two experienced university instructors in the field of teaching English, and they confirmed the validity of this test. This test was also piloted with 20 participants who had similar characteristics to the main study participants. The reliability of the test was also computed to be about 0.78 (r=0.78). The posttest was the same as the pretest with some changes in the order of the questions. In order to test the learners' retention of lexical collocations, the two-week delayed posttest was employed. This test was also the same as the pretest with some changes in the order of the items.

3.3. Procedures

First, the OPT was administered to choose 60 homogenized participants from among 100 learners who were at the intermediate level of English language proficiency. The test was carried out in one hour and then rated based on its answer key. The participants whose score was between one standard deviation above and below the mean were chosen and divided randomly into three groups, as one control and two experimental groups. These groups were called the voice group, the text group, and the control group. Then the participants were asked to take part in the pretest in 20 minutes.

The voice group was delivered a voice of their teacher introducing the collocations presented in lesson 7 of *Collocations in Use*. *Collocations in Use* is a book which is used for teaching and practicing collocations and it includes 60 units, each unit in two pages, one page is the lesson and the opposite is some practices regarding the lesson. Ten lessons, lessons 7 to 16, were chosen to be taught to the participants in ten parts. During the class time, the teacher introduced collocations. For example, for a noun, the most common verbs, adjectives, and other nouns that usually go with the intended noun were introduced. Then the teacher provided some examples for each collocation. Afterward, the students did some exercises related to those collocations, such as matching exercises and making sentences. The process continued in this way for the rest of the lessons to lesson 16. The participants received two voices each week, on Mondays and Wednesdays. In these voice messages, the teacher provided more explanations and examples about the collocations taught in the class.

In the text group, the activities in the class were the same as the voice group. In other words, in the classroom, the teacher introduced the collocations and provided examples for them, and the students did some activities related to them. However, in the text group, the teacher made a list of the collocations taught in the class along with some examples for each and send it to the students through WhatsApp. The process in this group also continued for the rest of the lessons.

In the control group, these 10 lessons were taught in the classroom the same way they were taught in the two experimental groups. However, in the control group, no voice or text messages were sent to the students after the time of the class. After five weeks and presenting 10 lessons from the book, the participants were asked to take part in the posttest. Then, in order to test their retention of collocations, they were asked to take part in the two-week delayed posttest which was the same as the posttest with some differences in the order of the items and choices.

In this study, it was not possible to choose the participants randomly; therefore, the study was a quasi-experimental, control group, pretest-posttest design. Collocation learning and retention were the dependent variables and voice and text messages via WhatsApp were the independent variables. Since one of the experimental groups of this study worked with the teacher's voice messages and the other one worked with written messages, one might think that the students with a better ability in listening comprehension might have benefited more from the voice messages. Therefore, the participants had to be homogenized based on their listening comprehension ability. This is what was done through the Oxford Placement Test. Since one of the sections of the OPT is the listening section, the participants of this study, who were homogenized through the Oxford Placement Tests, had similar abilities in listening comprehension.

4. Results and Discussion

4.1. Normality Test

In order to check the normality of the data, the researchers employed a one-sample Kolmogorov-Smirnov test which shows that a variable is not normally distributed if '*Sig.*' < 0.05 (Pallant, 2013). Table 4.3 shows the results of the normality test.

Table 1.
Tests of normality.

		Kolmogorov-Smirnov[a]		
	Groups	Statistic	df	Sig.
Pretest	voice group	.125	20	.200*
	text group	.118	20	.200*
	control group	.167	20	.148
Posttest	voice group	.129	20	.200*
	text group	.282	20	.150
	control group	.135	20	.200*
Delayed_Post test	voice group	.144	20	.200*
	text group	.277	20	.180
	control group	.188	20	.062

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

As Table 1 shows, there were totally nine groups of data which were gathered by pre-, post-, and two-week delayed posttest and as the numbers in *Sig.* column in the above table shows, the results had a normal distribution (*p*= .200, .200, .148, .200, .150, .200, .200, .180, .062; p>.05); therefore, parametric tests such as a paired-samples t-test and an independent-samples t-test could be applied.

4.2. Addressing the First Research Question

In order to find out whether the teacher's voice via WhatsApp had a statistically significant effect on Iranian EFL learners' learning lexical collocations, the researchers performed the independent-samples t-test. Table 2 shows the mean scores of the voice group (*M*=5.85, *Sd*.=1.98) and the control group (*M*=6.15, *Sd*.=1.78) in the pretest.

Table 2.
The comparison results of the voice group and the control group in the pretest.

Groups		N	Mean	Std. Deviation	Std. Error Mean
Pretest	voice group	20	5.8500	1.98083	.44293
	control group	20	6.1500	1.78517	.39918

Table 3 indicates that there was not a statistically significant difference between the voice group and the control group in the pretest (*P*>0.05, *P*=.61).

Table 3.
The independent-samples t-test of the voice group and the control group in the pretest.

Levene's Test for Equality of Variances									
		t-test for Equality of Means							
					Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	F	Sig.	t	df				Lower	Upper
Equal variances assumed	.743	.394	-.50	38	.618	-.30000	.59626	-1.507	.90707
Equal variances not assumed			-.50	37.596	.618	-.30000	.59626	-1.507	.90749

The researchers similarly performed the independent-samples t-test to compare the posttest of the voice group and the control group. Table 4 shows the mean scores of the voice group (*M*=17.35, *Sd*.=1.98) and the control group (*M*=12.80, *Sd*.=1.90).

Table 4.
The comparison results of the voice group and the control group in the posttest.

Groups	N	Mean	Std. Deviation	Std. Error Mean
Posttestvoice group	20	17.3500	1.98083	.44293
control group	20	12.8000	1.90843	.42674

Table 5 displays that there was a statistically significant difference between the voice group and the control group in the posttest (t (38) =7.39, P<.05, P=.01).

Table 5.
The independent-samples t-test of the voice group and the control group in the posttest.

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	.009	.924	7.398	38	.000	4.55000	.61505	3.30489	5.79511
Equal variances not assumed			7.398	37.947	.000	4.55000	.61505	3.30483	5.79517

Therefore, the results of the comparison of the control group and the voice group in the pretest and posttest rejected the first null hypothesis of this study, and it was confirmed that the teacher's voice via WhatsApp had a statistically significant effect on Iranian EFL learners' learning of lexical collocations.

4.3. Addressing the Second Research Question

In order to find out whether the teacher's written messages via WhatsApp had a statistically significant effect on Iranian EFL learners' learning of lexical collocations, the researchers performed the independent-samples t-test. Table 6 shows the mean scores of the text group (M=6.05, Sd.=1.82) and the control group (M=6.15, Sd.=1.78) in the pretest.

Table 6.
The comparison results of the text group and the control group in the pretest.

Groups	N	Mean	Std. Deviation	Std. Error Mean
Pretesttext group	20	6.0500	1.82021	.40701
control group	20	6.1500	1.78517	.39918

Table 7 indicates that there was not a statistically significant difference between the text group and the control group in the pretest (P>0.05, P=.86).

Table 7.
The independent-samples t-test of the text group and the control group in the pretest.

	Levene's Test for Equality of Variances		t-test for Equality of Means					
							95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	.057	.813	-.175	38	.862	-.10000	.57009	-1.254	1.05408
Equal variances not assumed			-.175	37.986	.862	-.10000	.57009	-1.254	1.05410

The researchers also performed the independent-samples t-test to compare the post-test of the text group and the control group. Table 8 shows the mean scores of the text group (M=15.45, Sd.=1.63) and the control group (M=12.80, Sd.=1.90).

Table 8.
The comparison results of the text group and the control group in the posttest.

Groups	N	Mean	Std. Deviation	Std. Error Mean
Posttesttext group	20	15.4500	1.63755	.36617
control group	20	12.8000	1.90843	.42674

Table 9 displays that there was a statistically significant difference between the text group and the control group in the posttest (t (38) =4.71, P<.05, P=.01). Therefore, the results of the comparison of the control group and the text group in the pretest and posttest rejected the second null hypothesis of this study, and it was confirmed that the teacher's written messages via WhatsApp had a statistically significant effect on Iranian EFL learners' learning of lexical collocations.

Table 9.
The independent-samples t-test of the text group and the control group in the posttest.

Levene's Test for Equality of Variances									
			t-test for Equality of Means						
					Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	F	Sig.	t	df				Lower	Upper
Equal variances assumed	.578	.452	4.713	38	.000	2.65000	.56230	1.51168	3.78832
Equal variances not assumed			4.713	37.143	.000	2.65000	.56230	1.51081	3.78919

4.4. Addressing the Third Research Question

In order to find out whether the teacher's voice via WhatsApp had a statistically significant effect on Iranian EFL learners' retention of lexical collocations, the researchers performed the independent-samples t-test to compare the control group and the voice group in the delayed posttest. Table 10 shows the mean scores of the control group (*M*=11.45, *Sd.*=2.83) and the voice group (*M*=17.20, *Sd.*=2.16) in the delayed posttest.

Table 10.
The comparison results of the voice group and the control group in the delayed posttest.

	Groups	N	Mean	Std. Deviation	Std. Error Mean
Delayed_Posttest	voice group	20	17.2000	2.16673	.48450
	control group	20	11.4500	2.83725	.63443

Table 11 indicates that there was a statistically significant difference between the control group and the voice group in the delayed posttest ($P<0.05$, $P=.01$). Therefore, the results of the comparison of the delayed posttest of the voice group and the control group rejected the third null hypothesis of this study, and it was confirmed that the teacher's voice via WhatsApp had a statistically significant effect on Iranian EFL learners' retention of lexical collocations.

Table 11.
The independent-samples t-test of the voice group and the control group in the delayed posttest.

	Levene's Test for Equality of Variances		t-test for Equality of Means					
							95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	2.802	.102	7.203	38	.000	5.75000	.79827	4.13398	7.36602
Equal variances not assumed			7.203	35.537	.000	5.75000	.79827	4.13030	7.36970

4.5. Addressing the Fourth Research Question

In order to find out whether the teacher's written messages via WhatsApp had a statistically significant effect on Iranian EFL learners' retention of lexical collocations, the researchers performed the independent-samples t-test to compare the control group and the text group in the delayed posttest. Table 12 shows the mean scores of the control group (*M*=11.45, *Sd.*=2.83) and the text group (*M*=12.65, *Sd.*=2.73) in the delayed posttest.

Table 12.
The comparison results of the text group and the control group in the delayed posttest.

	Groups	N	Mean	Std. Deviation	Std. Error Mean
Delayed Posttest	text group	20	12.6500	2.73909	.61248
	control group	20	11.4500	2.83725	.63443

Table 13 indicates that there was not a statistically significant difference between the control group and the text group in the delayed posttest (*P*>0.05, *P*=.182).

Table 13.
The independent-samples t-test of the text group and the control group in the delayed posttest.

	Levene's Test for Equality of Variances		t-test for Equality of Means					
							95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	.006	.939	1.361	38	.182	1.20000	.88183	-.58518	2.98518
Equal variances not assumed			1.361	37.953	.182	1.20000	.88183	-.58525	2.98525

Therefore, the results of the comparison of the control group and the text group in the delayed posttest did not reject the fourth null hypothesis of this study, and it was confirmed that the teacher's written messages via WhatsApp did not have a statistically significant effect on Iranian EFL learners' retention of lexical collocations.

5. Discussion

The above data analyses showed that the teacher's voice via WhatsApp had a statistically significant effect not only on Iranian EFL learners' learning of lexical collocations but also on their retention of lexical collocations. The reason for the effectiveness of the teacher's voice messages may be the fact that the students had an opportunity to listen to voice messages many times, anywhere, and anytime. However, the analyses also showed that teacher's written messages via WhatsApp just had a statistically significant effect on Iranian EFL learners' learning of lexical collocations and it did not have a statistically significant effect on their retention of lexical collocations. The effectiveness of the teacher's written messages on learning lexical collocations may be due to the fact that the students could also review the messages when and where they wanted, which increased their practice time. However, the lack of effect of teacher's written messages on retention of lexical collocations can be attributed to the students' learning styles or the easiness of listening to the teacher's voice rather than reading the written messages.

The reasons for the effectiveness of teacher's voice and written messages through WhatsApp on EFL learners' collocation learning can be attributed to the features of mobile learning in general. Key features of mobile learning include mobility, portability, accessibility, immediacy, interactivity, and individualization (Park, 2005). Mobility and portability release learners from time and space constraints and allow learning to happen at anytime, anywhere. Meanwhile, mobile devices and wireless transmission provide learners with immediate access to learning resources. Many mobile technologies also allow learners to stay connected with fellow learners and tutors as they share information with and seek help from one another. In addition, mobile devices offer the freedom for learners to plan and execute a learning program at a pace that they find comfortable with or to work intensively on some skills while avoiding others.

The results of the current study are supported by Fageeh's (2013) study. His results showed that using mobile device applications in EFL courses improved the vocabulary learning of the students. The participants' motivation also increased as a result of using these applications. Although his study was not specifically about WhatsApp Messenger, it showed the effectiveness of using mobile devices in learning vocabulary, which is similar to the results of the present study.

The findings of the study conducted by Jafari and Chalak (2016) also are more specifically in line with the findings of this study. Their results showed a positive effect of using WhatsApp for teaching vocabulary in English classes of Iranian junior high schools with no significant difference between male and female participants. Also, the findings of the present study are in line with those of the study carried out by Hassan Taj et al. (2017). They showed

the effectiveness of using PCs and mobile devices, in general, and WhatsApp Messenger, in particular, in teaching vocabulary to university students of English as a foreign language.

In addition, the findings of the current study are in line with the findings of the study carried out by Bensalem (2018), who showed that teaching vocabulary through WhatsApp was more effective than the traditional method of teaching in improving EFL learners' vocabulary knowledge. The study also revealed the positive attitude of participants toward using WhatsApp for learning vocabulary. Since learning lexical collocations are a subcategory of vocabulary learning, the results of the present study can be considered consistent with those of Bensalem's study as well as the other studies mentioned above.

The results of the study conducted by Çetinkaya and Sütçü (2018) more specifically support the results of the current study regarding the effectiveness of using WhatsApp on lexical collocations. Their study compared the effect of Facebook and WhatsApp on vocabulary learning of EFL learners, and the results, in general, indicated that WhatsApp was more effective than Facebook in vocabulary learning. The results are similar to the results of the present study, which showed the effectiveness of using WhatsApp messages, whether audio or written, on the learning of lexical collocation by EFL learners.

6. Conclusion

The results of the current study have implications for different groups of people. Firstly, EFL teachers working in different contexts, including schools, institutes, and universities, can benefit from the results of this study. They are recommended to use voice and written messages through WhatsApp to increase the efficiency of collocation teaching in their classes. The results of the present study showed that teacher's voice messages were more effective than written messages with regard to retention of collocations. However, teachers can use a combination of voice and written messages to accommodate different learning styles.

Secondly, the findings of this study are significant for all EFL/ESL learners as they can benefit from the use of voice and written messages via WhatsApp in learning collocation. If the learners are studying in a context in which the teacher provides them with WhatsApp voice or written messages, they can benefit from it and review the materials learned in the class with the help of the messages sent to them by the teacher.

In addition, language institutes can also introduce this strategy to their teachers and ask them to apply it in their classes. Finally, teacher trainers can introduce this strategy to their trainees in their courses as a useful method of teaching collocations.

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